DOCUMENT RESUME

ED 264 838 IR 011 922

AUTHOR Yeaman, Andrew R. J.
TITLE From Osborne to Macintosh.
PUB DATE May 85
NOTE 12p.; Paper presented at the Annual Spring Conference of the Maine Educational Media Association/Maine Library Association (Orono, ME, May 1985).
PUB TYPE Viewpoints (120) -- Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Comparative Analysis; Computer Software; Design Requirements; *Human Factors Engineering; *Man Machine Systems; *Microcomputers; Mnemonics; *Word Processing
IDENTIFIERS Apple Macintosh; Osborne 1; *User Cordial Interface

ABSTRACT

Recent improvements in the human factors elements incorporated in the design of personal computer interfaces are illustrated by detailed analyses of two microcomputers and their word processors (Osborne 1/WordStar and Apple's Macintosh/MacWrite). The vital steps in operation are described through analyses of the behavioral requirements involved in using each interface to create a document, save it on disk, and print it out. The hardware and software date from 1981 and 1984, respectively, and each has since received hardware improvements and software updates. Several differences between the Osborne 1/WordStar and Macintosh/MacWrite become apparent: (1) the opacity of the WordStar command-driven system, lightened by HELP menus, contrasts with the MacWrite system's invocation of a desktop as a mental model; (2) WordStar's Embedded Print Commands (EPC) contrast with MacWrite's What You See Is What You Get (WYSIWYG), in which the text appears on the screen just as it will print out; (3) Osborne's keyboard commands contrast with the Macintosh mouse-driven direct manipulation; (4) WordStar's somewhat haphazard menu organization contrasts with MacWrite's more orderly organization of menus; and (5) WordStar's command memorization through mnemonics contrasts with MacWrite's visual recognition. It is concluded that the three most important concepts in the cognitive engineering approach to system design are consistency, functionality, and friendliness (Norman, 1981), and that the Macintosh designers provide more consistency and functionality than the Osborne designers. (JB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
OERI
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official position or policy.

ED264838

FROM OSBORNE TO MACINTOSH

Andrew R. J. Yeaman, Ph.D.
Assistant Professor of Educational Computing
University of Maine
Presque Isle, Maine

A paper presented at the Maine Educational Media Association/
Maine Library Association Spring Conference,
Orono, Maine, May, 1985

IR011922

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Andrew R. J. Yeaman
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

FROM OSBORNE TO MACINTOSH

Andrew R. J. Yeaman, Ph.D.
Assistant Professor of Educational Computing
University of Maine
Presque Isle, Maine

INTRODUCTION:

Designers are inside the system they create. Often they design for themselves and not from the perspective of those who will ultimately work with the system every day. Librarians and school media specialists are the information professionals of the public sector. They both have a very important role to play in making the transition from a petrochemical based society to an information based society. "Libraries for Lifelong Learning," as the theme of this conference, underlines the shift from machine oriented information technology to people oriented information technology. Librarians and school media specialists in their positions of responsibility towards facilitating technological transfer need to be critical of information design. Therefore, this paper emphasizes recent improvements in the human factoring of the personal computer interface.

Several themes will become apparent as two highly successful microcomputers and their word processors are examined:

1. The opacity of a command-driven system, lightened by HELP menus, contrasting with a system invoking a desktop as a mental model.

BEST COPY AVAILABLE

2. Embedded Print Commands (EPC) contrasting with What You See Is What You Get (WYSIWYG) in that text appears on the screen just as it will print out.

3. Keyboard commands contrasting with mouse-driven direct manipulation.

4. Somewhat haphazard menu organization contrasting with more orderly organization of menus.

5. Command memorization through mnemonics contrasting with visual recognition.

Novices need to understand or learn the pathway to completing the basic task. Those steps to be completed may not be necessarily obvious or laid out by either system's designers in the accompanying instructional materials. Deviations from those precise steps results in failure. For instance, by forgetting to change the logged disk drive before editing can result in a document being lost due to lack of storage space on the program disk. Of course, it is important to remember that there may be differences between learning to use and ease of use.

The vital steps in operation are drawn out by analyses of behavioral requirements of each interface in order to create a document, save it on a disk and print it out. The hardware and software date from 1981 and 1984, respectively and each subsequently received hardware improvements and software updates. The first analysis is on the Osborne 1 running MicroPro's WordStar program. The second analyis is on Apple's Macintosh running MacWrite.

BEST COPY AVAILABLE

ANALYSIS OF OSBORNE 1/WORDSTAR:

Switch on the microcomputer, the printer and the external monitor. A message on the screen appears:

OSBORNE System One.
Rev. 1.2 c. 1981 OCC

Insert disk in Drive A and press RETURN._

Correctly insert the CP/M system startup disk into the left hand drive and press the return key. This boots up the Osborne 1 and the screen shows the CP/M Osborne 1 instructional menu.

Press the escape key to run CP/M.

A prompt appears: A>. Press down the control key and type P. This toggles the printer: information can now be sent from the Osborne to the printer.

To test the printer, type WS. This is also the command for the Osborne 1 CP/M system to load WordStar.

Replace the CP/M disk with the WordStar disk. Press return to execute the WS command. The WordStar main menu appears and a directory of subprograms: it is labelled with editing no-file. Although the most pertinent information appears, the screen must be scrolled to the right with control and right arrow key to read all of it.

Turn off the printer until it is needed again.

Put a formatted disk into the right hand drive, drive B. This is where the document can be saved.

Change the logged disk drive to B by selecting L from the main menu.

The screen asks for a drive name. Answer with B: by typing the letter B followed by the shifted colon and then pressing return.

BEST COPY AVAILABLE

The main menu is still available but the file directory now shows the contents of disk B.

Choose D from the main menu to create or edit a document. Type in the old name or make up a new one, press return.

A HELP menu fills the top one third of the screen and it is now possible to begin typing in text in the bottom portion of the screen. Explanations of various commands and editing actions are available from the HELP menu. To read the whole menu the screen must be scrolled to the right. It identifies the prefix keys to display the other menus. All the menus have different initial letters as names: Q for Quick commands, J for HELP commands, K is not named, O for onscreen formatting commands and P for Put Control Character in File. The HELP menu is called the J menu because the original programmers of WordStar allegedly thought it was a joke (Nilsen, 1984).

However, the screen is only 52 columns wide and the default margin is 65. It is sensible to set the right margin so all the text is visible on the screen at any one time, at least while entering text. Select the O menu by typing control O, choose option R then specify 50 and press return. This sets the right margin at column 50 and words typed past there will automatically be wrapped to the next line without the use of the return key. Vertical line spacing is similarly defined: control O, option S--enter any number from 1 to 9. If options following the prefix are keyed fast enough, as in normal typing, the individual menu does not appear and the command is immediately begun. A delay of about one second after keying the prefix will cause the menu to be summoned.

BEST COPY AVAILABLE

Begin entering text. Use arrow keys to move the cursor around in the text for any additions or deletions. Delete a single letter with control G, a word with control T or a line with control Y.

To save on a disk and continuing editing, type control KS. This writes a copy of the text from memory to the logged disk. Saving on disk while editing prevents total loss in case of a power outage or accidentally pressing reset.

When satisfied, reformat the document for printing by once more using the O menu for setting the margins and line spacing. Use control B to reformat paragraphs. Move the cursor to the beginning of a paragraph to be reformatted and press control B. If a word at the end of a line is too long, the choice to hyphen or not is presented. All text is right and left justified.

Save the file and return to the main menu by typing control KD, for done edit.

Turn the printer back on and get fresh paper ready. Choose P from the main menu, name the disk drive and file name and press escape for the default print settings. Pressing return will result in yes/no options requiring response with Y or N. The return key also will enter N as the default value. The Osborne 1 begins loading the file into memory and transfers information to the printer where it prints out.

BEST COPY AVAILABLE

MACINTOSH/MACWRITE:

Switch on the Macintosh. A representation of a disk appears in the center of the screen with a blinking question mark. Insert the MacWrite program disk into the drive just below the screen. The icon on the screen now changes to a Macintosh and displays a happy face. The desktop appears, showing the program files and the documents stored on this disk. Move the mouse so that the arrow on the screen is over the icon labeled MacWrite. Click the button.

The icon is displayed dark with light lettering to indicate it has been selected. Use the mouse to move the pointer to File at the top of the screen. Hold down the mouse button and pull down the menu. Click on Open to select that option.

The screen fills with a blank MacWrite document workspace, labelled Untitled. The cursor is a blinking vertical line sometimes referred to as the I-beam. Begin typing text.

The image of a ruler gives one hundred percent indication of space. Below it three icons depict vertical line spacing. Single spacing is preselected and is displayed in dark. Similarly, ragged right is the default text format and includes automatic word wrap. Margins are already set but may be adjusted by selecting the two black triangles in the ruler line and dragging them with the mouse to the desired points. When in the ruler area, and above it on the command line, the cursor resumes the form of the pointing arrow.

BEST COPY AVAILABLE

The cursor is moved around the text with the mouse. Clicking the mouse situates the cursor at the new insert point in the text. To delete the letter immediately to the left of the cursor, press the backspace key. Selecting is necessary to other deletions. Move the cursor to the left of the text to be deleted. Press down the mouse button and roll the mouse to the right. This highlights the letters or words to be removed. Remove pressure from the mouse button when the correct information is selected and press backspace.

If a mistake was made the text may be restored by going to the Edit menu and clicking on Undo Typing. Next to Undo Typing is the symbol for the command key and the letter Z. Command Z is a keyboard equivalent and many other functions have keyboard equivalents to mouse actions too. The command key is just to the left of the space bar and its placement corresponds to the Open Apple key on some other Apple computers.

Text may be saved while editing by pulling down the File menu and selecting Save As. A dialog box appears to request a name. The option of storing the file on another disk is also available by clicking on the drive button. When the contents of the drive box are in order, click on Save and resume editing.

When the text is satisfactory, reopen the File menu and select Save. Use the same menu to select Print. Turn the printer on and check to see if the paper is ready. Answer the questions in the dialog box on the screen by clicking with the mouse. Click OK to print.

9 BEST COPY AVAILABLE

CONCLUSION

In the cognitive engineering approach to system design the three most important concepts are consistency, functionality and friendliness as used by Norman in his critical evaluation of UNIX (1981). The names given, the linguistic functions assigned and the syntax constructed should remain consistent. They should reflect their functions: the mental model should be explicit. Friendliness is achieved by a lower load on long term memory for process functions.

In comparing Osborne 1/WordStar with Macintosh/MacWrite some intelligent developments are apparent. They are not so much in the construction of the fabled intelligent interface but in design by seemingly more intelligent designers. For instance, the WordStar HELP screens described earlier--while they are friendlier than having to always look functions up in the manual--do have severe defects by the software ergonomics criteria. Fortunately improvements are appearing: the main menu of WordStar 2000 requires the selection of E for Edit instead of D for create or edit a Document file.

Another example of consistency and functionality is provided by the command symbol used by the Macintosh designers. The International Standards Organization (ISO) symbol for command is clearly recognizable and resembles a clover leaf. The adoption of ISO symbols will improve the utility of all interfaces. Proprietary symbols such as the Open Apple can assist in product identification but do not help people who have to work with more than one interface: the transfer of skills is impaired. Also

BEST COPY AVAILABLE

there is good sense in naming this key as command since it is used to issue commands. The old name of control causes confusion in that it provides an extra name to be learned for performing the command function.

While computer manufacturers are pushing their designers to help purchasers become proficient faster and increase satisfaction and productivity (Gould & Lewis, 1985), librarians and media specialists in their roles as information brokers still need to make better decisions. Belland, for example, raises the question of whether it is right for children to be limited to the crudity of the Apple II interface when they have an opportunity to learn on Macintosh (1985). And awareness of the responsibility of sensibly managing information technology goes back at least into the last century, as Thoreau commented:

"We are in a great haste to construct a magnetic telegraph from Maine to Texas: but Maine and Texas, it may be, have nothing important to communicate."

BEST COPY AVAILABLE

REFERENCES

Belland, J. C. (1985). The inverse tool principle. Educational Communication and Technology Journal, 33(1), 51-57.

Gould, J. D. & Lewis, C. (1985). Designing for usability: Key principles and what designers think. Communications of the ACM, 28(3), 300-311.

Nilsen, D. L. F. (1984). Live, dead and terminally ill metaphors in computer terminology, or who is more human, the programmer or the computer? Educational Technology, 14(2), 27-29.

Norman, D. A. (1981). The trouble with UNIX. Datamation, 27,139-150.

 BEST COPY AVAILABLE